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Protection and promotion of human health

(Section I, chapter 5, of Agenda 21)

Text submitted by the Chairman on the basis of negotiations on document A/CONF.151/PC/100/Add.5

INTRODUCTION

1. The present document was prepared by the Secretary-General of the Conference in response to decision 3/8, taken on 3 September 1991 by the third Preparatory Committee. It is based on document A/CONF.151/PC/54, which reviewed environmental health aspects of development, on the conclusions and recommendations of the WHO Commission on Health and Environment, which concluded its work in October 1991, and on guidance on the structure and organization of Agenda 21 provided at the third session of the Preparatory Committee, in document A/CONF.151/PC/L.49.

2. [Health and development are intimately interconnected. Both insufficient development leading to poverty and inappropriate development resulting in overconsumption coupled with expanding world population can result in severe environmental health problems in both developing and developed nations. Action items under Agenda 21 must address the primary health needs of the world's population since they are integral with the achievement of the goals of sustainable development and primary environmental care. The linkage of health, environmental and socio-economic improvements requires intersectoral efforts. Such efforts involving education, housing, public works and community groups including businesses, schools and

universities, religious, civic and cultural organizations, are aimed at enabling people in their communities to ensure sustainable development. Particularly relevant is the inclusion of prevention programmes rather than relying solely on remediation and treatment. Countries ought to develop plans for priority actions, drawing on programme areas (a) to (e) which are based on cooperative planning by the various levels of government, NGOs, and local communities. An appropriate international organization, such as the World Health Organization (WHO) should coordinate these activities.^]

PROGRAMME AREAS

3. The following programme areas are developed in this chapter of Agenda 21.

A. Meeting basic health needs, including provision of safe food, adequate and balanced nutrition, clean drinking water and adequate sanitation

B. Control of communicable diseases

C. Protecting vulnerable groups

D. Meeting the urban health challenge

E. Reducing health risks from environmental pollution and hazards

A. MEETING BASIC HEALTH NEEDS

Basis for action

4. Health ultimately depends on the ability to successfully manage the interaction between the physical, spiritual, biological and economic/social environment. Sound development is not possible without a healthy population, yet most developmental activities affect to some degree the environment which, in turn, causes or exacerbates many health problems. Conversely, it is the very lack of development that adversely affects the health condition of many people and which can be alleviated only through development. The health sector cannot accomplish basic needs and objectives on its own; it is dependent on social, economic, and spiritual development while directly contributing to it. It is also dependent on a healthy environment, including the provision of a safe water supply and sanitation, and the promotion of a safe food supply and proper nutrition. Particular attention should be directed towards food safety with priority on the elimination of food contamination by pathogens, and post-harvest spoilage; comprehensive and sustainable water policies to ensure safe drinking water and sanitation to preclude both microbial and chemical contamination. Education and appropriate services regarding responsible planning of family size with respect for cultural, religious, and social traditions also contributes to these intersectoral activities. These activities presuppose the building of a health infrastructure for primary health care especially for women and

children in conjunction with primary environmental care. Meeting basic health needs goes hand in hand with the alleviation of poverty and should be seen as a contribution to it.

Objectives

5. Within the overall strategy to achieve health for all by the year 2000; to meet basic health needs of urban, peri-urban and rural populations; to provide necessary specialized environmental health services and coordinate involvement of citizens, the health sector, the health related sectors, and relevant non-health sectors (business, social, education and religious institutions) in solutions to health problems. As a matter of priority, health service coverage should be achieved for population groups in greatest need.

Activities

6. National Governments should, in the light of country specific conditions and needs, strengthen their health sector programmes to:

(a) Build basic health infrastructures, monitoring and planning systems

(i) Develop primary health care that is practical, scientifically sound and appropriate to their needs and meet basic health needs of clean water, safe food and sanitation;

(ii) Support the use and strengthening of mechanisms which improve the coordination between health and related sectors at all appropriate levels of government;

(iii) Develop and implement rational and affordable approaches to the establishment and maintenance of health facilities;

(iv) Ensure and, where appropriate, increase provision of social services support;

(v) Develop strategies, including reliable health indicators, to monitor the progress and evaluate the effectiveness of health programmes;

(vi) Explore ways to finance the health system based on the assessment of the resources needed and identify the various financing alternatives;

(vii) Promote information exchange, technical support and training;

(viii) Support initiatives for self-management of services by vulnerable groups;

(ix) Integrate traditional knowledge and experience into national health systems, as appropriate.

(b) Support research and methodology development

(i) Establish mechanisms for sustained community involvement in environmental health activities, including optimization of the appropriate use of community financial and human resources;

(ii) Conduct environmental health research, including behaviour research and ways to increase coverage and ensure greater utilization of services by peripheral, underserved and vulnerable populations, as appropriate to good prevention services and health care;

(iii) Conduct research into traditional knowledge of prevention and curative health practices.

Means of implementation

Financing and cost evaluation:

7. ^[Raising of health services levels to achieve objective (a) above requires expenditures of more than US$ 20 billion annually and about the same amount to achieve objective (b), totalling an annual expenditure of more than US$ 40 billion annually for the health sector. A contribution of about US$ 5 billion should be provided from international financial sources. This would include US$ 10 million annually for the strengthening of regional and global institutions which support national capacity-building in this area.^]

Scientific and technological means:

8. New approaches to planning and managing health care systems and facilities should be tested and research on ways of integrating appropriate technologies into health infrastructures supported. The development of scientifically sound health technology should enhance the adaptability to local needs and maintainability by community resources, including the maintenance and repair of equipment used in health care. Programmes to facilitate the transfer and sharing of information and expertise should be developed, including communication methods and educational materials.

Human resource development:

9. Intersectoral approaches to the reform of health personnel development should be strengthened to ensure its relevance to the "Health for All" strategies. Efforts to enhance managerial skills at the district level should be supported, with the aim of ensuring the systematic development and efficient operation of the basic health system. Intensive, short, practical training programmes with emphasis on skills in effective communication, community organization and facilitation of behaviour change should be developed in order to prepare the local personnel of all sectors involved in social development for carrying out their respective roles. In cooperation with the education sector, special health education programmes should be developed focusing on the role of women in the health care system.

Capacity-building:

10. Governments should consider adopting enabling and facilitating strategies to promote community participation in meeting its own needs in addition to providing direct support to the provision of health care services. A major focus should be the preparation of community-based health and health-related workers to assume an active role in community health education with emphasis on team work, social mobilization and the support of other development workers. National programmes should cover district health systems in urban, peri-urban and rural areas; the delivery of health programmes at the district level, and the development and support of referral services.

B. CONTROL OF COMMUNICABLE DISEASES

Basis for action

11. Advances in the development of vaccines and chemotherapeutic agents have brought many communicable diseases under control. However, many important communicable diseases remain for which environmental control measures are indispensable, especially in the field of water supply and sanitation such as cholera, diarrhoeal diseases, leishmaniasis, malaria, and schistosomiasis. In all such instances, the environmental measures, either as an integral part of primary health care or undertaken outside the health sector, form an indispensable component of overall disease control strategies, together with health and hygiene education, and in some cases, are the only component.

12. With HIV infection levels estimated to increase to 30-40 million by the year 2000, the socio-economic impact of the pandemic is expected to be devastating for all countries and increasingly for women and children. While direct health costs will be substantial, they will be dwarfed by the indirect costs of the pandemic, i.e. mainly costs associated with the loss of income and decreased productivity of the workforce. The pandemic will inhibit growth of the service and industrial sectors and significantly increase costs of human capacity-building and retraining. The agricultural sector is particularly affected where production is labour-intensive.

Objectives

13. A number of goals have been formulated through extensive consultations in various international forums attended by virtually all Governments, relevant United Nations agencies (including WHO, UNICEF, UNFPA, UNESCO, and UNDP), the World Bank and a number of non-governmental organizations. Goals (including but not limited to those listed below) are recommended for implementation by all countries where they are applicable, with appropriate adaptation to the specific situation of each country in terms of phasing, standards, priorities, and availability of resources, with respect for cultural, religious and social traditions. Additional goals that are particularly relevant to a country's specific situation should be added in the country's national plan of action (Plan of Action for the implementation of the World Declaration on the Survival, Protection and Development of Children in the 1990s). Such national

level action plans should be coordinated and monitored from within the public health sector. Some major goals are:

(a) By the year 2000, to eliminate Guinea worm disease (dracunculiasis);

(b) By the year 2000, eradicate polio;

(c) By the year 2000, to effectively control onchocerciasis (river blindness) and leprosy;

(d) By 1995, to reduce measles deaths by 95 per cent and reduce measles cases by 90 per cent compared with pre-immunization levels;

(e) By continued efforts, to provide health and hygiene education and to ensure universal access to safe drinking water and universal access to sanitary measures of excreta disposal, thereby markedly reducing waterborne diseases such as cholera and schistosomiasis; and,

(i) By the year 2000, to reduce the number of deaths from childhood diarrhoea in developing countries by between 50 to 70 per cent;

(ii) By the year 2000, to reduce the incidence of childhood diarrhoea in developing countries by at least 25 to 50 per cent;

(f) By the year 2000, to initiate comprehensive programmes to reduce mortality from acute respiratory infections in children under five years by at least one third, particularly in countries with high infant mortality;

(g) By the year 2000, to provide 95 per cent of the world's child population with access to appropriate care for acute respiratory infections within the community and at first referral level;

(h) By the year 2000, to institute anti-malaria programmes in all countries where malaria presents a significant health problem and maintain the transmission-free status of areas freed from endemic malaria;

(i) By the year 2000, to implement control programmes in countries where major human parasitic infections are endemic and achieve an overall reduction in the prevalence of schistosomiasis and of other trematode infections by 40 per cent and 25 per cent respectively from a 1984 baseline, as well as a marked reduction in incidence, prevalence and intensity of filarial infections;

(j) To mobilize and unify national and international efforts against AIDS to prevent infection and to reduce the personal and social impact of HIV infection;

(k) To contain the resurgence of tuberculosis with particular emphasis on multiple antibiotic resistant forms;

(l) To accelerate research on improved vaccines and implement to the fullest extent possible the use of vaccines in the prevention of disease.

Activities

14. Each national Government, in accordance with national plans, priorities and objectives, should consider developing a national health action plan with appropriate international assistance and support including, at a minimum, the following components:

(a) National health systems

(i) Programmes to identify environmental hazards in the causation of communicable diseases;

(ii) Monitoring systems of epidemiological data to ensure adequate forecasting of the introduction, spread or aggravation of communicable diseases;

(iii) Intervention programmes, including measures consistent with the principles of the global AIDS strategy;

(iv) Vaccines for the prevention of communicable diseases;

(b) Public information and health education

(i) Provide education and disseminate information on the risks of endemic communicable diseases and build awareness on environmental methods for control of communicable diseases to enable communities to play a role in the control of communicable diseases;

(c) Intersectoral cooperation and coordination

(i) Second experienced health professionals, to relevant sectors, such as planning, housing and agriculture;

(ii) Develop guidelines for effective coordination in the areas of professional training, assessment of risks and development of control technology;

(d) Control of environmental factors that influence the spread of communicable diseases

(i) Apply methods for the prevention and control of communicable diseases including water supply and sanitation, water pollution control, food quality control, integrated vector control, garbage collection and disposal, and environmentally sound irrigation practices;

(e) Primary health care system

(i) Strengthen prevention programmes with particular emphasis on adequate and balanced nutrition;

(ii) Strengthen early diagnostic programmes and improve capacities for early preventative/treatment action;

(iii) Reduce the vulnerability to HIV infection of women and of their offspring;

(f) Support research and methodology development

(i) Intensify and expand multidiscipline research, including focused efforts on the mitigation and environmental control of tropical diseases;

(ii) Carry out intervention studies to provide a solid epidemiological basis for control policies and to evaluate the efficiency of alternative approaches;

(iii) Undertake studies in the population and among health workers to determine the influence of cultural, behavioural and social factors on control policies;

(g) Development and dissemination of technology

(i) Develop new technologies for the effective control of communicable diseases;

(ii) Promote studies to determine how to optimally disseminate results from research;

(iii) Ensure technical assistance including the sharing of knowledge and know-how.

Means of implementation

Financing and cost evaluation:

15. [The health sector expenditure of developing countries for the control and prevention of communicable diseases, particularly the tropical and vector-borne diseases, is estimated at US$ 2 billion annually. The international financial support should contribute about one third of the health sector costs, or US$ 600 million, annually. This includes US$ 4 million annually for the support of international institutions. In addition, vector control services and insecticides require annual expenditures in the order of US$ 1 billion annually.

16. The public health expenditures for the prevention of AIDS and the treatment of AIDS cases is estimated to cost the developing countries around US$ 1 billion annually. The international financial support should cover about US$ 300 million thereof, including global and regional institutions and programmes.]

Scientific and technological means:

17. Efforts to prevent and control diseases should include investigations of the epidemiological, social and economic bases for the development of more effective national strategies for the integrated control of communicable diseases. Cost-effective methods of environmental control should be adapted to local developmental conditions.

Human resources development:

18. National and regional training institutions should promote broad intersectoral approaches to prevention and control of communicable diseases, including training in epidemiology and community prevention and control, immunology, molecular biology and the application of new vaccines. Health education materials should be developed for use by community workers and for the education of mothers for the prevention and treatment of diarrhoeal diseases in the home.

Capacity-building:

19. The health sector should develop adequate data on the distribution of communicable diseases as well as the institutional capacity to respond and collaborate with other sectors for prevention, mitigation and correction of communicable disease hazards through environmental protection. The advocacy at policy- and decision-making levels should be gained, professional and societal support mobilized, and communities organized in developing their self-reliance.

C. PROTECTING VULNERABLE GROUPS

Basis for action

20. In addition to meeting basic health needs, specific emphasis has to be given to protecting and educating vulnerable groups, particularly infants, youth, women, indigenous peoples and the very poor as a prerequisite for sustainable development.

21. Infants and children: Approximately one third of the world's population are children under 15 years old. At least 15 million of these children die annually from such preventable causes as birth trauma, birth asphyxia, acute respiratory infections, malnutrition, communicable diseases and diarrhoea. The health of children is affected more severely than other population groups by malnutrition and adverse environmental factors, and many children risk exploitation as cheap labour or in prostitution.

22. Youth: As has been the historical experience of all countries, youth are particularly vulnerable to the problems associated with economic development which often weakens traditional forms of social support essential for healthy development of young people. Urbanization and changes in social mores have increased substance abuse, unwanted pregnancy and sexually transmitted

diseases including AIDS. Currently more than half of all people alive are under the age of 25 and 4 of every 5 live in developing countries, therefore it is important to ensure that historical experience is not replicated.

23. Women: In developing countries, the health status of women remains relatively low, and during the 1980s poverty, malnutrition and general ill-health in women were even rising. Most women in developing countries still do not have adequate basic educational opportunities and they lack the means of promoting their health, responsibly controlling their reproductive life and improving their socio-economic status. Particular attention should be given to the provision of pre-natal care to ensure healthy babies.

24. Indigenous peoples: Indigenous peoples make up a significant percentage of global population. The outcomes of their experience have tended to be very similar in that the basis of their relationship with traditional lands has been fundamentally changed. They tend to feature disproportionately in unemployment, lack of housing, poverty and poor health. In many countries the number of indigenous people is growing faster than the general population. Therefore it is important to target health initiatives for indigenous people.

Objectives

25. The general objectives of protecting vulnerable groups are to ensure that all such individuals should be allowed to develop to their full potential (including healthy, physical, mental and spiritual development): to ensure that young people can develop, establish and maintain healthy lives; to allow women to perform their key role in society; and to support indigenous people through educational, economic and technical opportunities.

26. Specific major goals for child survival, development and protection were agreed upon at the World Summit for Children and remain valid also for Agenda 21. Supporting and sectoral goals cover women's health and education, nutrition, child health, water and sanitation, basic education and children in difficult circumstances.

Activities

27. National Governments, in cooperation with local and non-governmental organizations should initiate or enhance programmes in the following areas:

(a) Infants and children

(i) Strengthen basic health care services for children, in the context of primary health care delivery including prenatal care, breast-feeding, immunization and nutrition programmes;

(ii) Undertake widespread adult education on the use of oral rehydration therapy for diarrhoea, treatment of respiratory infections and prevention of communicable diseases;

(iii) Promote creation, amendment, and enforcement of a legal framework protecting children from sexual and workplace exploitation;

(iv) Protect children from the effects of environmental and occupational toxic compounds;

(b) Youth

(i) Strengthen services for youth in health, education and social sectors in order to provide better information, education, counselling and treatment for specific health problems, including drug abuse;

(c) Women

(i) Involve women's groups in decision-making at the national and community levels to identify health risks and incorporate health issues in national action programmes on women and development;

(ii) Provide concrete incentives to encourage and maintain attendance of women of all ages at school and adult education courses, including health education and training in primary, home and maternal health care;

(iii) Carry out baseline surveys and knowledge, attitude and practice studies on health and nutrition of women throughout their life cycle, especially as related to the impact of environmental degradation and adequate resources;

(d) Indigenous peoples

(i) Strengthen by resource and self-management preventative and curative health services;

(ii) Integrate traditional knowledge and experience into health systems.

Means of implementation

Financing and cost evaluation:

28. [The incremental cost, above the basic health needs, for activities to address the special needs of vulnerable groups is an estimated US$ 3.7 billion per year to cover child health programmes, youth programmes and women's health programmes. About US$ 400 million would be needed from international sources, including US$ 5 million annually to strengthen international institutions.]

Scientific and technological means:

29. Educational, health and research institutions should be strengthened to provide support to improve the health of vulnerable groups. Social research on the specific problems of these groups should be expanded and methods for implementing flexible pragmatic solutions explored with emphasis on preventive measures. Technical support should be provided to Governments, institutions and youths', women's and indigenous peoples' non-governmental organizations in the health sector.

Human resources development:

30. The development of human resources for the health of children, youth and women should include reinforcement of educational institutions, promotion of interactive methods of education for health and increased use of mass media in disseminating information to the target groups. This requires the training of more community health workers, nurses, midwives, physicians, social scientists and educators, the education of mothers, families and communities and the strengthening of ministries of education, health, population etc.

Capacity-building:

31. The Governments should promote where necessary (i) the organization of national, intercountry and interregional symposia and other meetings for the exchange of information among agencies and groups concerned with the health of children, youth, women and indigenous peoples, and (ii) women's organizations, youth groups and indigenous peoples' organizations to facilitate health and consult them on the creation, amendment and enforcement of legal frameworks to ensure a healthy environment for children, youth, women and indigenous peoples.

D. MEETING THE URBAN HEALTH CHALLENGE

Basis for action

32. For hundreds of millions of people, the poor living conditions in urban and peri-urban areas are destroying lives, health, social and moral values. Urban growth has outstripped society's capacity to meet human needs, leaving hundreds of millions of people with inadequate incomes, diets, housing and services. Urban growth exposes populations to serious environmental hazards and has outstripped the capacity of municipal and local governments to provide the environmental health services that the people need. All too often, urban development is associated with destructive effects on the physical environment and the resource base needed for sustainable development. Environmental pollution in urban areas is associated with excess morbidity and mortality. Overcrowding and inadequate housing contribute to respiratory diseases, tuberculosis, meningitis and other diseases. In urban environments, many factors that affect human health are outside the health sector. Improvements in urban health therefore will depend on coordinated action by all levels of government, health care providers, businesses, religious groups, social and educational institutions and citizens.

Objectives

33. To improve the health and well-being of all urban dwellers, so that they can contribute to economic and social development. The global objective is to achieve a 10 to 40 per cent improvement in health indicators by the year 2000. The same rate of improvement should be achieved for environmental, housing, and health services indicators. These include the development of quantitative objectives for: infant mortality, maternal mortality, percentage of low birth weight newborns, and specific indicators (e.g. tuberculosis as an indicator of crowded housing, diarrhoeal diseases as indicators of inadequate water and sanitation, rates of industrial and transportation accidents that indicate possible opportunities for prevention of injury, and social problems such as drug abuse, violence and crime that indicate underlying social disorders).

Activities

34. Local authorities, with the appropriate support of national Governments and international organizations should be encouraged to take effective measures to initiate or strengthen the following activities:

(a) Develop and implement municipal and local health plans

(i) Establish or strengthen intersectoral committees at both the political and technical level, including active collaboration on linkages with scientific, cultural, religious, medical, business, social and other city institutions, using networking arrangements;

(ii) Adopt or strengthen municipal or local "enabling strategies" that emphasize "doing with" rather than "doing for" and create supportive environments for health;

(iii) Ensure that public health education in schools, workplace, mass media etc. is provided or strengthened;

(iv) Encourage communities to develop personal skills and awareness of primary health care;

(b) Survey, where necessary, the existing health, social and environmental conditions in cities including documentation of intra-urban differences

(c) Strengthen environmental health services

(i) Adopt health impact and environmental impact assessment procedures;

(ii) Provide basic and in-service training for new and existing personnel;

(d) Establish and maintain city networks for collaboration and exchange of models of good practice

Means of implementation

Financing and cost evaluation:

35. [Most of the programme activities should be performed by the cities using local resources. For the implementation of healthy cities and other similar programmes, the local cost of activities would be in the order of US$ 200 million annually. The international contributions in support of accelerated development is estimated to be about US$ 20 million per year until the year 2000. Strengthening of international institutions is required to provide collaborative networks, development of assessment methods for planning purposes, design of new technologies and managerial support. International financing of labour US$ 2 million is required annually for this.]

Scientific and technological means:

36. Decision-making models should be further developed and more widely used to assess the costs and the health and environment impacts of alternative technologies and strategies. Improvement in urban development and management requires better national and municipal statistics based on practical, standardized indicators. Development of methods is a priority for the measurement of intra-urban and intra-district variations in health status and environmental conditions, and for the application of this information in planning and management.

Human resources development:

37. Programmes must supply the orientation and basic training of municipal staff required for the healthy city processes. Basic and in-service training of environmental health personnel will also be needed.

Capacity-building:

38. The programme is aimed towards improved planning and management capabilities in the municipal and local government and its partners in central Government, the private sector and universities. Capacity development should be focused on obtaining sufficient information, improving coordination mechanisms linking all the key actors, and making better use of available instruments and resources for implementation.

E. REDUCING HEALTH RISKS FROM ENVIRONMENTAL POLLUTION AND HAZARDS

Basis for action

39. In many locations around the world the general environment (air, water and land), workplaces and even individual dwellings are so badly polluted that the health of hundreds of millions of people is adversely affected. This is, inter alia, due to past and present developments in consumption and production

patterns, lifestyles, in energy production and use, in industry, in transportation etc., with little or no regard for environmental protection. There have been notable improvements in some countries, but deterioration of the environment continues. The ability of countries to tackle pollution and health problems is greatly restrained because of lack of resources. Pollution control and health protection measures have often not kept pace with economic development. Considerable development-related environmental health hazards exist in the newly industrializing countries. Furthermore, the recent analysis of the World Health Organization has clearly established the interdependence among the factors of health, environment and development, and has revealed that most countries are lacking such integration as would lead to an effective pollution control mechanism (Report of the World Health Organization's Commission on Health and Environment, in press, 1992). ^[While developing national action programmes it must be borne in mind that environmental standards in developed countries may have inappropriate and unwarranted social and economic costs in developing countries.^]

Objectives

40. The overall objective is to minimize hazards and maintain the environment to a degree that human health and safety is not impaired or endangered and yet encourage development to proceed. Specific programme objectives are:

(a) By the year 2000, to incorporate appropriate environmental and health safeguards as part of national development programmes in all countries;

(b) By the year 2000, to establish, as appropriate, adequate national infrastructure and programmes for providing environmental injury, hazard surveillance and the basis for abatement in all countries;

(c) By the year 2000, to establish, as appropriate, integrated programmes for tackling pollution at source and at disposal site with a focus on abatement actions in all countries;

(d) To identify and compile, as appropriate, the necessary statistical information on health effects to support cost benefit analysis including environmental health impact assessment for pollution control, prevention, and abatement measures.

Activities

41. Nationally determined action programmes with international assistance, support and coordination, where necessary, in this area should include:

(a) Urban air pollution

(i) Develop appropriate pollution control technology on the basis of risk assessment and epidemiological research for the introduction of clean production processes and suitable safe mass transport;

(ii) Develop air pollution control capacities in large cities emphasizing enforcement programmes using monitoring networks as appropriate;

(b) Indoor air pollution

(i) Support research and develop programmes for applying prevention and control methods to reducing indoor air pollution, including the provision of economic incentives for the installation of appropriate technology;

(ii) Develop and implement health education campaigns, particularly in developing countries, to reduce the health impact of domestic use of biomass and coal;

(c) Water pollution

(i) Develop appropriate water pollution control technologies on the basis of health risk assessment;

(ii) Develop water pollution control capacities in large cities;

(d) Pesticides

(i) Develop mechanisms to control the distribution and use of pesticides in order to minimize the risks to human health by transportation, storage, application and residual effects of pesticides used in agriculture and preservation of wood;

(e) Solid waste

(i) Develop appropriate solid waste disposal technologies on the basis of health risk assessment;

(ii) Develop appropriate solid waste disposal capacities in large cities;

(f) Human settlements

(i) Develop programmes for improving health conditions in human settlements, in particular within slums and non-tenured settlements on the basis of health risk assessment;

(g) Noise

(i) Develop criteria for maximum permitted safe noise exposure levels and promote noise assessment and control as part of environmental health programmes;

(h) Ionizing and non-ionizing radiation

(i) Develop and implement appropriate national legislation, standards and enforcement procedures on the basis of existing international guidelines;

(ii) Investigate whether there are health effects due to additional ultraviolet radiation caused by ozone layer reduction;

(i) Industry and energy production

(i) Establish environmental health impact assessment procedures for the planning and development of new industries and energy facilities;

(ii) Incorporate appropriate health risk analysis in all national programmes for pollution control and management, with particular emphasis on toxic compounds such as lead;

(iii) Establish industrial hygiene programmes in all major industries for the surveillance of workers' exposure to health hazards, especially noting the need to protect female workers;

(iv) Promote the introduction of clean technologies within the industry and energy sectors;

(j) Monitoring and assessment

(i) Establish as appropriate adequate environmental monitoring capacities for the surveillance of environmental quality and health status of populations;

(k) Injury monitoring and reduction

(i) Support, as appropriate, the development of systems to monitor the incidence and cause of injury to allow well-targeted intervention/prevention strategies;

(ii) Develop, in accordance with national plans, strategies in all sectors (industry, traffic, and others) consistent with the WHO safe cities and safe communities programmes, to reduce the frequency and severity of injury;

(iii) Emphasize preventive strategies to reduce occupationally derived diseases and diseases caused by environmental and occupational toxins to enhance worker safety;

(l) Research promotion and methodology development

(i) Support the development of new methods for the quantitative assessment of health benefits and cost associated with different pollution control strategies;

(ii) Develop and carry out interdisciplinary research on the combined health effects of exposure to multiple environmental hazards, including epidemiological investigations of long-term exposures to low levels of pollutants and the use of biological markers capable of estimating human exposures, adverse effects and susceptibility to environmental agents.

Means of implementation

Financing and cost evaluation:

42. ^[The reduction of air pollution in urban areas of the developing countries requires annual investments on the order of US$ 2.5 billion, with a private sector component of about US$ 2.0 billion. The public expenditure component of about US$ 500 million includes an international financial contribution of about US$ 50 million annually. The reduction of indoor air pollution from household biomass use is estimated at US$ 500 million annually with an international financing component of about US$ 50 million annually.

43. The establishment and strengthening of health-oriented monitoring systems for air, water and soil in developing countries and of national capacities for dealing with air pollution, indoor air quality, noise, radiation, health impact assessment and research promotion requires about US$ 30 million annually with US$ 15 million coming from international sources, including US$ 2 million for the strengthening of international institutions.^]

Scientific and technological means:

44. Although technology to prevent or abate pollution is readily available for a large number of problems, for programme and policy development countries should undertake research within an intersectoral framework. Such efforts should include collaboration from the business sector. Cost-effect analysis and environmental impact assessment methods should be developed through cooperative international programmes and applied to the setting of priorities and strategies in relation to health and development.

45. In the activities listed under (a) to (l) above, developing country efforts should be facilitated by access to and transfer of technology, know-how and information, from the repositories of such knowledge and technologies, on concessional and preferential terms.

Human resource development:

46. Comprehensive national strategies should be designed to overcome the lack of qualified human resources, which is a major impediment to progress in dealing with environmental health hazards. Training should include environmental and health officials at all levels from managers to inspectors. More emphasis needs to be placed on including the subject of environmental health in the curricula of secondary schools and universities and on educating the public.

Capacity-building:

47. Each country should develop the knowledge and practical skills to foresee and identify environmental health hazards, and the capacity to reduce the risks. Basic capacity requirements must include: knowledge about environmental health problems and awareness on the part of leaders, citizens and specialists; operational mechanisms for intersectoral and intergovernmental cooperation in development planning and management and in combating pollution; arrangements for involving private and community interests in dealing with social issues; delegation of authority and distribution of resources to intermediate and local levels of government to provide front-line capabilities to meet environmental health needs.